

## ABSTRACT OF THE INVENTION

A switch fabric implemented on a chip includes an array of cells and an I/O interface in communication with the array of cells permitting exchange of data packets between the array of cells and components external to the array of cells. Each cell communicates with at least one other cell of the array, thereby permitting exchange of data packets between the cells of the array. Each cell includes a memory for holding a plurality of data packets for transmission to other cells of said array. Each data packet of the plurality of data packets has a characteristic element represented by a parameter, the parameter allowing one data packet to be distinguished from another data packet in the plurality of data packets. Each cell further includes a control entity operative to select at least one data packet from the plurality of data packets at least in part on a basis of the parameter and to transmit the selected data packet to another cell of said array of cells. In this way, arbitration is distributed throughout the cells of the switch fabric.